



## Resiliency Engineering Framework

### Project Update

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FSTC Annual Meeting

11 October 2006



**Software Engineering Institute**

**Carnegie Mellon**



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Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE <b>11 OCT 2006</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2006 to 00-00-2006</b>	
4. TITLE AND SUBTITLE <b>Resiliency Engineering Framework: Project Update</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Carnegie Mellon University ,Software Engineering Institute (SEI),Pittsburgh,PA,15213</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>23</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

# The Resiliency Model Project

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Collaboration between FSTC and Carnegie Mellon's Software Engineering Institute

Multi-phased effort to help financial organizations to measure and improve their resiliency capabilities

Focused on the resiliency engineering process

Encompasses security, business continuity, and IT operations practices with focus on operational risk management

Codified in the "Resiliency Engineering Framework"

Establishes a foundation for resiliency process improvement

# Software Engineering Institute

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Established in 1984

Federally Funded Research and Development Center (FFRDC)

College-level unit of Carnegie Mellon University

Includes five technical programs aimed helping defense, government, industry, and academic organizations to continually improve software-intensive systems

Widely-known areas of expertise

- CERT Coordination Center (security)
- CMMI Capability Maturity Model Integration (process improvement)



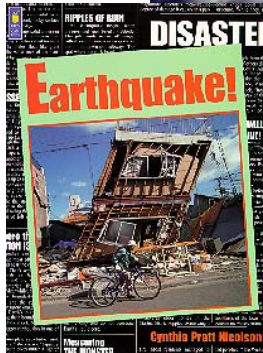
# An expanded risk environment



**Regulations**



**Cyber Security**



**Disasters**

**Supply Chain**



**Infrastructure**



**Terrorism**



# Resiliency...more than a buzzword

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Resiliency is the ability of an object to return to its original shape

Operational resiliency refers to an organization's ability to function and adapt through the lifecycle of disruptions

A resiliency model is a roadmap for managing the consistent delivery of products and services



# Managing resiliency is a challenge

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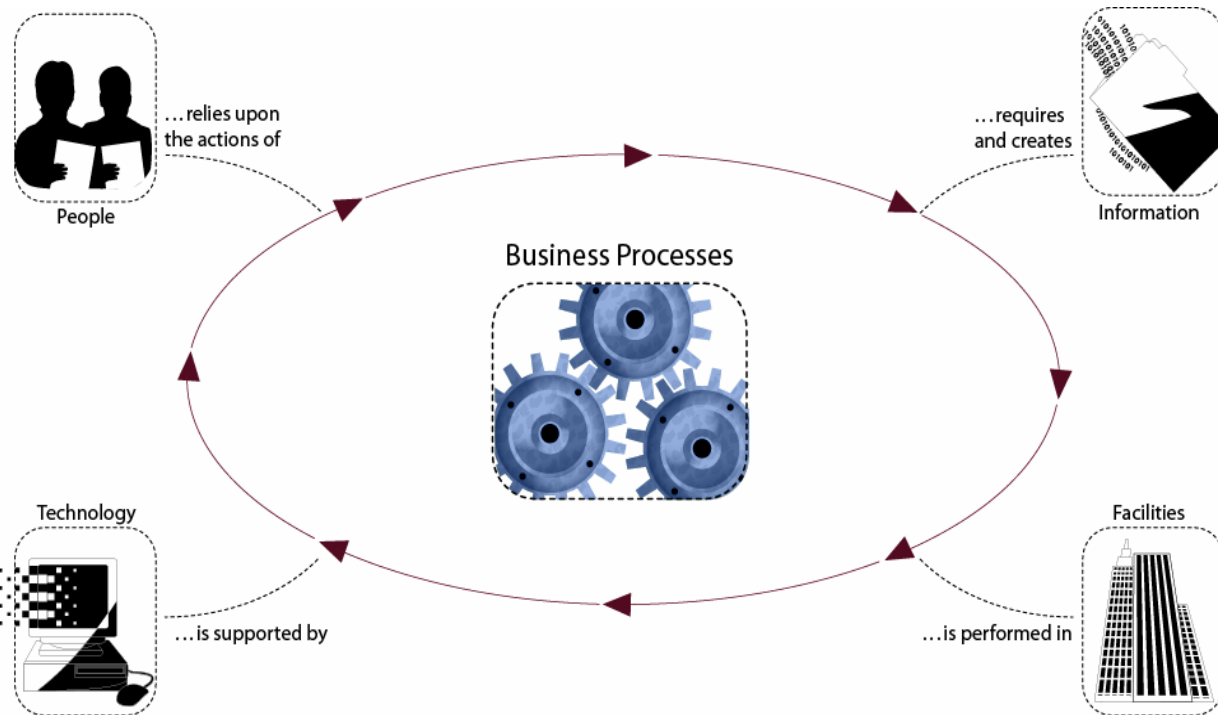
## Requires

- Ongoing measurement and monitoring
- Balancing cost and risk tradeoffs
- Taking an enterprise focus

Financial Services organizations recognize a need to be able to manage resiliency in a systematic, consistent, measurable, and improvable way



# Resiliency engineering in practice



*The process by which an organization establishes, develops, implements, and manages the operational resiliency of services, related business processes, and associated assets*



# Collaborating toward a common goal

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# A framework is needed to. . .

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Identify and prioritize risk exposures

Define a process improvement roadmap

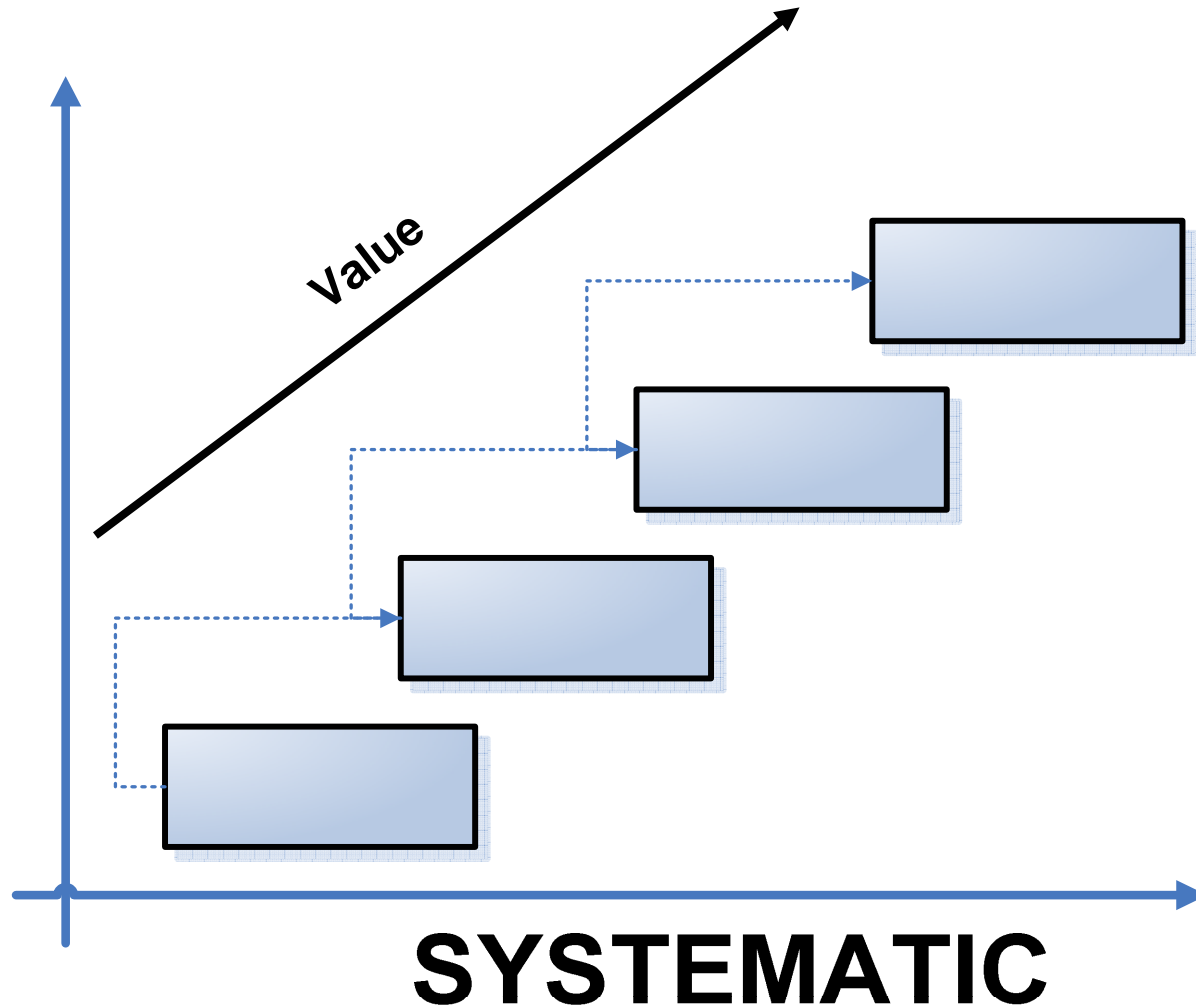
Measure and facilitate strategic planning

Address interdependencies

Promote pro-active regulatory compliance



# Goal: continuous improvement of resiliency processes



# Why use a “framework” approach?

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Provides an operational risk roadmap

Vendor-neutral, standardized, unbiased assessment vehicle

Can be leveraged for process improvement at any organization, public or private

Avoids the pitfalls of prescriptive solutions by promoting resiliency engineering and the use of organization-appropriate practices



# The Resiliency Engineering Framework

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An integrated process improvement framework for security and business continuity

Defines basic process areas and provides guidelines for improving security and BC processes

Addresses operational risk management through process management

Vital linkages between security, BC, and I/T ops are captured in the process definition

Establishes a capability benchmark

# Why use a “process” approach?

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Elevates the management and coordination of operational-resiliency focused activities to the enterprise:

- Shared view of risk, goals, and resources
- Elimination of redundancy and stovepipes
- Elimination of “practice quagmire” by selecting meaningful practices that fit the process definition
- Ability to set goals and measure process effectiveness
- Ability to inculcate and nurture a process improvement culture

# How will the framework be used?

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Establish current level of capability

Set forward-looking resiliency goals and targets

Develop plans to close identified gaps

Build resiliency into important assets and architectures

Reduce reactionary activities; shift to directing and controlling activities

Align common practices with processes to achieve process goals

# Future activities

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Release REF v1.0 in October 2006 for comments

Guidelines for improving the security and business continuity processes

Phase III expansion of model development and piloting

Exploration of integration with other existing models

Development of appraisal methodology to measure capability for managing resiliency



# Phase I and Phase II Project Members

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**Ameriprise**

**Bank of America**

**Carnegie Mellon**

**Capital Group**

**Citicorp**

**Discover**

**DRII**

**DRJ**

**IBM**

**JPMorgan Chase**

**Key Bank**

**KPMG**

**MasterCard**

**Marshall and Ilsley**

**NY Federal Reserve Bank**

**SunGard**

**Trizec Properties**

**US Bank**

**Wachovia**

# For more information

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## Introducing the Resiliency Engineering Framework



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# Framework architecture

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Represents processes that span four basic areas:

- Enterprise management
- Engineering
- Operations management
- Process management

Considers the resiliency of people, information, technology, and facilities in the context of services and business objectives

# Enterprise management processes

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*Enterprise capabilities that are essential to supporting the resiliency engineering process*

**RISK** – Risk Management

**EF** – Enterprise Focus

**COMP** – Compliance Management

**FRM** – Financial Resource Management

**HRM** – Human Resource Management

# Operations management processes

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*Capabilities focused on sustaining an adequate level of operational resiliency*

**SAM** – Supplier Agreement Management

**SRM** – Supplier Relationship Management

**AMC** – Access Management and Control

**IMC** – Incident Management and Control

**VM** – Vulnerability Management

**EC** – Environmental Control

**KIM** – Knowledge and Information Management

**SOM** – Security Operations Management

**ITOPS** – IT Operations Management

**TM** – Technology Management

# Engineering processes

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*Capabilities focused on establishing and implementing resiliency for organizational assets, business processes, and services*

**RRD** – Requirements Definition

**RRM** – Requirements Management

**ADM** – Asset Definition and Management

**SM** – Survivability Management

**REST** – Restoration of Operations Planning

**CM** – Controls Management

**RADA** – Resilient Architecture Development and Acquisition

# Process management processes

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*Enterprise capabilities  
related to defining, planning,  
deploying, implementing,  
monitoring, controlling,  
appraising, measuring, and  
improving processes*

**OTA** – Organizational Training and Awareness

**PM** – Process Management

**MA** – Measurement and Analysis

**MON** - Monitoring